

**BUREAU OF LAND MANAGEMENT
ROSWELL FIELD OFFICE**

3/27/2008

**ENVIRONMENTAL ASSESSMENT # NM-510-08-52
Carthel "BGT" Federal #2**

(1/15/07) Element Checklist – Affected Environment and Basis for Determination No Further Analysis

Resources	Not Present On Site	No Impacts	May Be Impacts *	Mitigation Included	BLM Reviewer	Date
CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT *Must address in document						
Air Quality *			✓	✓	Hydrologist /s/ Michael McGee	2/7/08
Floodplains*	✓					
Water Quality - Surface*			✓	✓		
Water Quality - Ground*			X	X	Geologist /s/ John S. Simitz	2/27/08
Cultural Resources*	X				Archaeologist Pat Flanary 08-R-041-A	3/17/08
Native American Religious Concerns*		X				
Environmental Justice*		X			Environ. Prot. Spec. Richard G. Hill	1/18/08
Areas of Critical Environmental Concern*	X				Plan & Environ. Coord. /s/J H Parman	2/5/08
Farmlands, Prime or Unique*	X				Realty /s/ Judy Yslas	02/07/08
Invasive, Non-native Species*			✓	✓	Range Mgmt. Spec. /s/ Joseph M. Navarro	1/22/08
Wastes, Hazardous or Solid		X			Environ. Prot. Spec. Richard G. Hill	1/18/08
Threatened or Endangered Species*	X				Biologist /s/D Baggao	2/8/08
Wetlands/Riparian Zones*	X					
Wild and Scenic Rivers*	X				Outdoor Rec. Planer /s/Bill Murry	1/24/08
Wilderness*	X					

ENVIRONMENTAL ASSESSMENT # NM-510-08-52
Carthel "BGT" Federal #2

NON-CRITICAL ELEMENTS						
Resources	Not Present On Site	No Impacts	May Be Impacts*	Mitigation Included	BLM Reviewer	Date
General Topography - Surface Geology		X			Environ. Prot. Spec. Richard G. Hill	1/18/08
Solid Mineral Resources		✓			Geologist /s/ Jerry Dutchover	02/11/08
Fluid Mineral Resources - Ground		X			Geologist /s/ John S. Simitz	2/27/08
Paleontology		X			Archaeology Pat Flanary	3/17/08
Soil			✓	✓	Hydrologist /s/ Michael McGee	2/7/08
Watershed/Hydrology			✓	✓		
Vegetation			✓	✓	Range Mgmt. Spec. /s/ Joseph M. Navarro	1/22/08
Livestock Grazing			✓	✓		
Special Status Species			X	X	Biologist /s/ D Baggao	2/8/08
Wildlife			X	X		
Recreation			X		Outdoor Rec. Planner /s/Bill Murry	1/24/08
Visual Resources			X			
Cave/Karst			X			
Public Health and Safety		X			Environ. Prot. Spec. Richard G. Hill	1/18/08

BUREAU OF LAND MANAGEMENT ROSWELL FIELD OFFICE

ENVIRONMENTAL ASSESSMENT Number NM-510-08-52

Lease Number NMNM 100552

Yates Petroleum Corporation

Carthel "BGT" Federal #2

1.0 Introduction

Yates Petroleum Corporation has filed an Application for Permit to Drill (APD) to drill the Carthel "BGT" Federal #2 oil well. There will be a need for approximately 1347' x 14 feet of new access road located on lease to the proposed well location. The location for the proposed well is:

T. 15 S., R. 29 E., NMPM., Chaves County, New Mexico
1980' FNL and 1980' FEL, Section 23.

1.1 Purpose and Need

The purpose for the proposal is to define and produce oil or natural gas on one or more valid Federal mineral lease issued to the applicant by the BLM. It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet National, regional, and local needs. The Mineral Leasing Act of 1920 (MLA), as amended [30 USC 181 et seq.], authorizes the BLM to issue oil and gas leases for the exploration of oil and gas, and permit the development of those leases. An approved Application for Permit to Drill (APD), issued by the BLM, would authorize the applicant to construct and drill a well.

The oil and gas lease associated with the proposed APD was temporarily suspended due of seasonal LPC stipulation applied to the proposed action. A lease suspension was granted by BLM, New Mexico State Office to Yates Petroleum Corporation on March 7, 2008 for this well.

1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this site-specific EA tiers to and incorporates by reference the information and analysis contained in the 1997 Roswell RMP, as amended and "Special Status Species Resource Management Plan Amendment May 2008 (RMPA)". The RMP and RMPA are available for review at the Roswell Field Office, Roswell, New Mexico. This EA addresses the resources and impacts on a site-specific basis as required by the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-90, 42 USC 4321 et seq.).

1.3 Federal, State or Local Permits, Licenses or Other Consultation Requirements

Under Section 402 of the Clean Water Act (as amended), the U.S. Environmental Protection Agency (EPA), was directed to develop a phased approach to regulate storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. Industrial activities disturbing land may require permit coverage through a NPDES storm water discharge. Depending on the acreage disturbed, either a Phase I industrial activity (5 or more acres disturbance) or a Phase II small construction activities (between 1 and 5 acres disturbance) permit may be required. Additionally, an U.S. Army Corps of Engineers Section 404 permit for the discharge of dredge and fill materials may also be required. Additionally, a New Mexico Surface Water Quality Bureau 401 certification may also be required under a U.S. Army Corps of Engineers Section 404 permit. Operators are required to obtain all necessary permits and approvals prior to any disturbance activities.

Roswell Field Office staff reviewed the proposed action and determined it would be in compliance with threatened and endangered species management guidelines outlined in the 1997 Biological Assessment (Cons. #2-22-96-F-102). No further consultation with the U.S. Fish and Wildlife Service is required.

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM – New Mexico State Historic Preservation Officer protocol agreement, which is authorized by the National Programmatic Agreement between the *BLM*, the *Advisory Council on Historic Preservation*, and the *National Conference of State Historic Preservation Officers*, and other applicable BLM handbooks.

Additionally, the Operator is required to:

- Comply with all applicable Federal, State and local laws and regulations.
- Obtain the necessary permits for the drilling, completion and production of this well including water rights appropriations, the installation of water management facilities, water discharge permits and relevant air quality permits.

2.0 Alternatives Including the Proposed Action

2.1 Alternative A - No Action

The BLM NEPA Handbook (H-1790-1) and the National Environmental Policy Act and associated Code of Federal Regulations state that for EAs on externally initiated proposed actions, the No Action alternative means that the proposed activity would not take place. The No Action Alternative is presented for baseline analysis of resource impacts, and if selected, would deny the approval of the proposed application. Current land and resource uses would continue to occur in the proposed project area. Not mitigation measures would be required.

2.2 Alternative B Proposed Action

Yates Petroleum Corporation proposes to construct a well pad and reserve pit located within a 600' x 600' area. The well pad that would be 325 feet long by 185 feet wide with an additional 125' X 75' area on the northeast corner of the proposed pad area. The reserve pit will be plastic lined and will be in full compliance with the OCD General Plan for Drilling Pits approved on April 15, 2004. The reserve pit would be constructed about 150 feet by 175 feet and will be dug 3 feet below ground level. The reserve pit would be located on the north side of the well pad with the V-Door east. Standard oilfield construction equipment consisting of; track-type tractors, motor graders, dump trucks and water trucks would be used to construct the access road and well pad.

There will be a need for an on-lease access road to the proposed well location. The on-lease road is approximately 1,347 feet in length and will have a driving surface (travel way) of 14 feet with a maximum disturbance width of 30 feet. The on-lease access road construction will begin on the northwest corner of an abandoned well location (Carthel "BGT" Federal #1) and will follow the centerline staking in a northeasterly direction until it reaches the southwest corner of the proposed well pad. The on-lease road will be constructed according to the BLM road standards in the Conditions of Approval.

All other existing access roads would be maintained in a good or better condition than those existing at commencement of operations.

In the event that the well is productive, the necessary production facilities will be installed on the drilling pad. If the well is productive oil, a gas or diesel self-contained unit will be used to provide the necessary power. No power will be required if the well is a producing gas well.

No modifications, or alternatives, to the proposed action received from Yates Petroleum were identified as the result of the onsite inspection on February 6, 2008.

2.3 Alternatives Considered But Not Analyzed In Detail

Relocate the Proposed Action:

The well location is determined on the basis of subsurface geologic information. No other alternative location would have significantly fewer impacts than, or have a clear advantage over, the projected location. Therefore, the alternative of changing the location involved in this action is not analyzed further in this EA.

3.0 Affected Environment

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Certain critical environmental components require analysis under BLM policy.

These items are included below in Table 3.0, found as the first page of this document. Following the table, only the aspects of the affected environment that are potentially impacted are described. The following elements are not present: Areas of Critical Environmental Concern, Prime or Unique Farmlands, Floodplains, Paleontology, Wilderness, Wild Horses and Burros, Wild and Scenic Rivers, Wilderness Study Areas.

Location: Drive east of Artesia on U.S. Highway 82 for approximately 22.4 miles to Loco Hills, NM, turn left (North) onto County Road 217/Hagerman cut off, continue north for approximately 11.4 miles., there will be a lease road on the left turn left (west) and continue on existing lease road for approximately .06 of a mile the road will end at a dry hole marker (Carthel BGT Federal #1). The new road will start here at the southwest corner and travel in a northerly slight east direction for approximately 1347 feet to the southwest corner of the proposed location.

3.1 Land Use

Existing Rights-of-Way:

Road ROW, NM-110307, covers the off lease segment of access road and the ROW granted to Yates Petroleum Corp. The total length of the road right-of-way is approximately 3,271.2 feet in length and it is located in T. 15 S., R. 29 E., Sec. 23, N½SE¼; and Sec. 24, N½SW¼. The ROW begins from the Hagerman Cutoff County Road (217) in Section 24, and ends at the abandoned Carthel BGT Federal #1 well pad that is located in Section 23.

The new road that will be constructed to this well will cross over two (2) existing buried pipelines. Right-of-way NM-72814 (ROW-WATER FACILITY) is a 3 inch diameter buried pipeline and right-of-way NM-020263 (ROW-O&G PIPELINE) is a 7 inch diameter pipeline buried pipeline.

3.2 Air Quality

The proposed action falls within a Class II Air quality. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment.

The Environmental Protection Agency's (EPA) U.S. Greenhouse Gas inventory lists six types of gases which contribute to global average radiative forcing on global warming potential. These gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). The levels of these greenhouse gases (GHG) have been increasing and are expected to continue increasing. Theses emissions are present because of the oil and gas development within the Roswell Field Office.

3.3 Cultural Resources

A cultural inventory survey, 08-R-041-A revealed no archeological or historic sites that could be impacted by well pad or access road construction.

3.4 Native American Religious Concerns

A review of existing information indicates the proposed action is outside any known Traditional Cultural Property.

3.5 Environmental Justice

Executive Order 12898 requires Federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety impacts on minority and low-income populations.

3.6 Invasive & Noxious Weeds

There are no known populations of invasive or noxious weed species on the proposed access road and well pad.

Infestations of noxious weeds can have a disastrous impact on biodiversity and natural ecosystems. Noxious weeds affect native plant species by out-competing native vegetation for light, water and soil nutrients. Noxious weeds cause estimated losses to producers \$2 to \$3 billion annually. These losses are attributed to: (1) Decreased quality of agricultural products due to high levels of competition from noxious weeds; (2) decreased quantity of agricultural products due to noxious weed infestations; and (3) costs to control and/or prevent the noxious weeds.

Further, noxious weeds can negatively affect livestock and dairy producers by making forage either unpalatable or toxic to livestock, thus decreasing livestock productivity and potentially increasing producers' feed and animal health care costs. Increased costs to operators are eventually borne by consumers.

Noxious weeds also affect recreational uses, and reduce realty values of both the directly influenced and adjacent properties.

Recent federal legislation has been enacted requiring state and county agencies to implement noxious weed control programs. Monies would be made available for these activities from the federal government, generated from the federal tax base. Therefore, all citizens and taxpayers of the United States are directly affected when noxious weed control prevention is not exercised.

3.7 Threatened or Endangered Species

Under Section 7 of the Endangered Species Act of 1973 (as amended), the BLM is required to consult with the U.S. Fish and Wildlife Service on any proposed action which may affect Federal listed threatened or endangered species or species proposed for listing. The Roswell Field Office; Wildlife Biologist reviewed and determined the proposed action is in compliance with listed species management guidelines outlined in the 1997 Biological Assessment (Cons. #2-22-96-F-102). No further consultation with the Service is required.

There are no known threatened or endangered species of plant or animals within the project area. The list of federal threatened, endangered and candidate species reviewed for this EA can be found in Appendix 11 of the Roswell Approved RMP (AP11-2).

3.8 Wastes, Hazardous or Solid

No waste material will be removed from the project area and upon reclamation of the reserve pit the NMOCD rules will be imposed and the reserve pit contents will be encapsulated.

3.9 Water Quality

Surface:

Surface water within the area is affected by geology, precipitation, and water erosion. Factors that currently affect surface water resources include livestock grazing management, oil and gas development, recreational use and brush control treatment. Ephemeral surface water within the area may be located in tributaries, playas, alkali lakes and stock tanks. No perennial surface water is found on public land in the area of operations.

Ground:

Groundwater within the area is affected by vegetation, geology and precipitation. Factors that currently affect groundwater resources in the area include livestock grazing management, oil and gas development, groundwater pumping and possible impacts from brush control treatments

State Engineers' water listing shows fresh water for stock in the Quaternary Alluvium. However, this appears to be erroneous due to the thickness of the surface sand (6 in. to 7 ft and caliche) and the thickness of the caliche (8 ft) which occur in the area.

The depth where water occurs in the township is 85 ft. This depth is well into the Triassic redbeds, the probable source. Although little water has been found in this area and the surrounding townships the data indicates water may be obtain in the redbeds above the Rustler fm.

Deepest Expected Fresh Water: above 272.

3.10 General Topography/Surface Geology

The topographic characteristics and/or regional setting of the project area are: This area is mostly flat land with small minor hummocky mounds. The soils are sandy and there are not any major surface features that will be disturbed by the project construction.

3.11 Mineral Resources

Construction material (caliche/gravel) for surfacing the access road and well pad could be obtained by the operator from a federal pit in the NE¹/₄SW¹/₄ of Section 12, T. 15 S., R. 29 E., Chaves County, New Mexico.

3.12 Soil

The *Soil Survey of Chaves County, New Mexico, Southern Part (USDA Soil Conservation Service 1980)* was used to describe and analyze impacts to soils from the proposed action. The soil map units represented in the project area are:

Berino-Cacique association, 0 to 3 percent slopes (Be) Runoff of the Berino soil is very slow and the hazard of water erosion is slight and the hazard of soil blowing is moderate. Runoff of the Cacique soil is slow and the hazard of water erosion is slight and the hazard of soil blowing is moderate.

3.13 Watershed – Hydrology

The watershed and hydrology in the area is affected by land and water use practices. The degree to which hydrologic processes are affected by land and water use depends on location, extent, timing and the type of activity. Factors that currently cause short-lived alterations to the hydrologic regime in the area include livestock grazing management, recreational use activities, groundwater pumping and also oil and gas developments such as a well pad, permanent and temporary road, pipeline and powerline.

3.14 Vegetation - MIXED DESERT SHRUB COMMUNITY

This lease is within the Mixed Desert Shrub community as identified in the Roswell Resource Management Plan/Environmental Impact Statement (RMP/EIS). Appendix 11 of the Draft RMP/EIS describes the Desired Plant Community (DPC) concept and identifies the components of each community.

The Ecological Site Description for the well pad and access road is Sandy SD-3 (Southern Desertic Basins, Plains & Mountains).

3.15 Livestock Grazing/Range

This proposed action is located on BLM grazing allotment #65075 Turkey Track, permitted to Bogle LTD., P.O. Drawer 460, Dexter, NM. Current permitted use is 4,587 AUM's year long @ 52% public land for 28,623 AUM's Animal Unit Months. Cattle and horses are the class of livestock authorized.

3.16 Wildlife

The vegetation found at this site provides habitat to a large range of wildlife species. Some of the common mammals are mule deer, pronghorn, badger, coyote, fox, jackrabbit, cottontails, kangaroo rats, and pocket gophers. It also provides habitat for a variety of grassland and desert birds. Important passerine birds include meadowlarks, horned larks, lark buntings, Cassin's sparrows, lark sparrows, Chihuahuan ravens, and loggerhead shrikes. Other birds include scaled quail, mourning doves, roadrunners, common nighthawks, killdeer, and a variety of raptors including red-tailed and Swainson's hawks, northern harriers, great horned owls, and burrowing owls. It also provides habitat to a large variety of common lizards and snakes.

3.17 Special Status Species

In accordance with BLM Manual 6840, BLM manages certain sensitive species not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. Included in this category are State listed endangered species and Federal candidate species which receive no special protections under the Endangered Species Act. Special status species with potential to occur in the proposed project area are listed in Table 3.21.1.

Table 3.21.1 Habitat descriptions and Presence of BLM Roswell Field Office Special Status Species.

Common Name	(scientific name)	Status	Habitat	Presence*
Lesser Prairie Chicken	<i>Tympanuchus pallidicinctus</i>	Candidate	Potential	NS

Presence* NS Habitat suitable but species is not suspected to occur within the project area.

Lease Suspension – The obligation to attach the LPC seasonal stipulation restricting construction activities between March 1 through June 15th to protect Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) habitat would impede Yates Petroleum Corporation from drilling this well before the expiration date of the lease on 2/29/08. A lease suspension was granted by BLM, New Mexico State Office to Yates Petroleum Corporation on March 7, 2008 for this well.

3.18 Visual Resources

The proposed project is within a Visual Resource Management Class IV area as identified in the Roswell RMP. Visual Resource Management (VRM) on public land is conducted in accordance with BLM Handbook 8410 and BLM Manual 8411.

3.19 Recreation

The area around the proposed action site is primarily used by recreational visitors engaged in hunting, caving, sight seeing, driving for pleasure, off-highway vehicle use, and other recreational activities. Non-recreation visitors include oil and gas industrial workers and ranchers.

3.20 Cave/Karst

While the proposed action is located in the *Low Potential Karst Area*, no surface cave/karst features were observed in the immediate vicinity of the proposed action.

3.21 Public Health and Safety

The project will not be detrimental to public health. The operator will insure that all phases of the project operations are conducted in workman like manner. Precautionary procedures and/or measures will be strictly adhered to in order provide a safe and sound working environment for the general existence of the well.

4.0 Environmental Consequences and Proposed Mitigation Measures

No Action Alternative

Under the No Action Alternative, the proposed well would not be drilled. There would be no new impacts from oil and gas production to the resources. The No Action Alternative would result in the continuation of the current land and resource uses in the project area and is used as the baseline for comparison of alternatives.

Alternative B – Proposed Action

Under the Proposed Action, the well would be drilled as originally proposed, without changes to reduce the potential impact to the environment. A summary of potential surface disturbance is presented in Table 4.0. Descriptions of potential impacts on individual resources for action alternatives is presented in the following text. Also described are mitigation measures that could be incorporated by the BLM where appropriate as Conditions of Approval attached to the permit.

A summary of potential surface disturbance is presented in Table 4.0. Descriptions of potential impacts on individual resources for action alternatives is presented in the following text. Also described are mitigation measures that could be incorporated by the BLM where appropriate as Conditions of Approval attached to the permit. The changes to the proposed action which resulted in development of Alternative C as the preferred alternative have reduced the potential impact to the environment which will result from this action.

Table 4.0 Summary of Disturbance

Facility	Number of Miles	Acreage of Disturbance	Duration of Disturbance
Well Pad		2.2	Long Term
New Road Construction	0.3	0.4	Long Term

Short-term impacts are those which can be stabilized or mitigated rapidly (within 5 years). Long-term impacts are those that would substantially remain for more than 5 years.

4.1 Air Quality

4.1.1 Direct and Indirect Impacts

Air quality would temporary be directly impacted with pollution from exhaust emissions, chemical odors, and dust that would be caused by the motorized equipment used to construct the access road, well pad, and by the drilling rig that will be used to drill the well. Dust dissemination would discontinue upon completion of the construction phases of the access road and well pad.

Air pollution from the motorized equipment would discontinue at the completion of the drilling phase of the operations. The winds that frequent the southeastern part of New Mexico generally disperse the odors and emissions. The impacts to air quality would be greatly reduced as the construction and drilling phase are completed. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from recreational use, and dust from use of the road for vehicular traffic.

The federal Clean Air Act requires that air pollutant emissions be controlled from all significant sources in areas that do not meet the national ambient Air quality standards. The New Mexico Air Quality Bureau (NMAQB) is responsible for enforcing the state and national ambient air quality standards in New Mexico. Any emission source must comply with the NMAQB regulations (USDI, BLM 2003b). At the present time, the counties that lie within the jurisdictional boundaries of the Roswell Field Office are classified as in attainment of all state and national ambient air quality standards as defined in the Clean Air Act of 1972, as amended (USDI, BLM 2003b).

The Environmental Protection Agency (EPA), on October 17, 2006, issued a final ruling on the lowering of the National Ambient Air Quality Standard (NAAQS) for particulate matter ranging from 2.5 micron or smaller particle size. This ruling became effective on December 18, 2006, stating that the 24-hour standard for PM_{2.5} was lowered to 35 ug/m³ from the previous standard of 65 ug/m³. This revised PM_{2.5} daily NAAQS was promulgated to better protect the public from short-term particle exposure.

The significant threshold of 35 ug/m³ daily PM_{2.5} NAAQS is not expected to be exceeded under the proposed action. The state and national ambient air quality standards as defined in the Clean Air Act of 1972, as amended (USDI, BLM 2003b) are not expected to be exceeded under the proposed action.

Impacts of development would include releases of GHG and volatile organic compounds during drilling or potential leaks. The amount of emissions can not be quantified at this time since it is unknown if the well will be producer, or what technologies may be employed. This variability in oil and gas activities on federal minerals in the Roswell Field Office and the absence of regulatory requirements to track CO₂ and CH₄ emissions makes it impossible to accurately quantify impacts from specific BLM permitting actions or specific prospective wells. It is, however, possible to make some generalizations.

The New Mexico Greenhouse Gas Inventory and Reference Case Projection 1990-2020 estimates that approximately 19.4 million metric tons of both CO₂ and CH₄ emissions are produced each year by oil and natural gas production, processing, transmission and distribution. From 2001 to 2007 an average of 1,663 per year of new oil and natural gas wells were drilled. (See NM Oil Conservation Division statistics.) An average of 75 wells per year is drilled for Federal minerals within the Roswell Field Office. This represents approximately 4.5 percent of wells drilled in New Mexico per year and indicates the level of activity in the field office. Assuming that all wells emit an equal amount of GHG, 4.5 percent of the total emissions in New Mexico are from Federal wells within the field office and is approximately 0.9 metric tons of emissions per year.

4.1.2 Mitigation

EPA data shows that improved practices and technology, and changing economics have reduced emissions from oil and gas exploration and development. One of the factors in this improvement is the adoption, by industry of the Best Management Practices proposed by the EPA's Natural Gas Energy Star program. BLM will work with industry to facilitate the expansion of the following BMP's on operations proposed on federal mineral leases.

Production

- Identify and replace high-bleed pneumatic devices
- Install flash tank separators on dehydrators

Distribution Systems

- Implement directed inspection and maintenance programs at gate stations and surface facilities
- Identify and rehabilitate leaky distribution pipes

Transmission Systems

- Implement directed inspection and maintenance programs at compressor stations
- Consider use of turbines at compressor stations in lieu of reciprocating engines
- Identify and replace high-bleed pneumatic devices

Processing

- Replace gas pneumatics with instrument air systems
- Install flash tank separators on glycol dehydrators
- Implement directed inspection and maintenance at gas plants and booster stations

4.2 Cultural Resources

4.2.1 Direct and Indirect Impacts

There should be no direct or indirect impacts to cultural resources in regard to the construction of this well and access road.

4.3 Native American Religious Concerns

4.3.1 Direct and Indirect Impacts

To date, the areas to be affected by project construction has not been identified by interested tribes as being important to them.

4.4 Environmental Justice

4.4.1 Direct and Indirect Impacts

No minority or low income populations would be directly affected in the vicinity of the proposed action. Indirect impacts could include impacts due to overall employment opportunities related to the oil and gas and service support industry in the region, as well as the economic benefits to State and County governments related to royalty payments and severance taxes. Other impacts could include a small increase in activity where vehicular traffic increases in areas used for grazing or hunting. However, these impacts would apply to all public land users in the project area.

4.5 Invasive & Noxious Weeds

4.5.1 Direct and Indirect Impacts

The construction of an access road and well pad may unintentionally contribute to the establishment and spread of noxious weeds. Noxious weed seed could be carried to and from the project areas by construction equipment, the drilling rig and transport vehicles. The main mechanism for seed dispersion on the road and well pad is by equipment and vehicles if they were previously used and or driven across or through noxious weed infested areas.

The potential for the dissemination of invasive and noxious weed seed may be elevated by the use of construction equipment typically contracted out to companies that may be from other geographic areas in the region. Washing and decontaminating the equipment prior to transporting onto and exiting the construction areas would minimize this impact.

Impacts by noxious weeds will be minimized due to requirements for the company to eradicate the weeds upon discovery. Multiple applications may be required to effectively control the identified populations.

4.5.2 Mitigation

In the event noxious weeds are discovered after the construction of the access road and well pad, measures will be taken to mitigate those impacts.

4.6 Wastes, Hazardous or Solid

4.6.1 Direct and Indirect Impacts

The lease action falls under environmental regulations that impact exploration and production waste management and disposal practices that impose responsibility and liability on the operator for the protection of human health and the environment from harmful waste management practices or discharges.

4.6.2 Mitigation - The Conditions of Approval have mitigation measures that would minimize any potential impacts.

4.7 Water Quality:

A. Surface;

4.7.1A A Direct and Indirect Impacts

Surface disturbance from the construction of the well pad, access road, pipelines, and powerlines can result in degradation of surface water quality and groundwater quality from non-point source pollution, increased soil losses, and increased gully erosion.

Potential direct impacts that would occur due to construction of the well pad, access road, pipelines, and powerlines include increased surface water runoff and off-site sedimentation brought about by soil disturbance: increased salt loading and water quality impairment of surface waters; channel morphology changes due to road and pipeline crossings; and possible contamination of surface waters by produced water. The magnitude of these impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activity would occur, and the timely implementation and success or failure of mitigation measures.

Direct impacts would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, and reclamation efforts. Construction activities would occur over a relatively short period; therefore, the majority of the disturbance would be intense but short lived. Direct impacts to surface water quality would be minor, short-

term impacts which may occur during storm flow events. Indirect impacts to water-quality related resources, such as fisheries, would not occur.

Petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and ground water quality. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

4.7.2A Mitigation

The use of a plastic-lined reserve pit would reduce or eliminate seepage of drilling fluid into the soil and eventually reaching groundwater.

Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soil onsite, or offsite, and may potentially impact surface and groundwater resources in the long term.

B. Groundwater;

4.8.1B Direct and Indirect Impacts

Petroleum products and other chemicals, accidentally leaked through casing, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and ground water quality. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

4.8.2B Mitigation

The casing and cementing requirements imposed on the proposed well would reduce or eliminate the potential for groundwater contamination from drilling muds and other surface sources.

The use of a plastic-lined reserve pit would reduce or eliminate seepage of drilling fluid into the soil and eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soil onsite, or offsite, and may potentially impact surface and groundwater resources in the long term.

The operator plans to set surface casing at 350 ft this should be about 50 ft above salt. If salt is encountered before the casing depth, the operator is to stop and set surface casing 25 ft above the salt as ordered in the Conditions of Approval.

4.9 General Topography/Surface Geology

The surface disturbance anticipated from the construction of the well pad and access road would have minimal impacts on the area of the operations. No major land or soil displacement would occur from the cradle to grave operations associated with construction of the access road and well pad.

4.9.1 Direct and Indirect Impacts

Direct impacts would result from the removal of the surface soils (topsoil) during construction of the well pad and access road. The consequential earth moving activities would indirectly impact the vegetation and would cause the fragmentation of the surface habitat where small animals live in the project area.

4.9.2 Mitigation

The inclusion of mitigation measures to conserve the landscape as much as possible in the Conditions of Approval would lessen the impacts from the surface disturbance activities on this project.

4.10 Soil

4.10.1 Direct and Indirect Impacts

The construction of the access road, well pad, and reserve pit would physically disturb the topsoil and would expose the substratum soil. (See -Table 4.0 for Summary of Disturbance).

Direct impacts resulting from the oil and gas construction of the well pad, access road, and reserve pit include removal of vegetation, exposure of the soil, mixing of horizons, compaction, loss of top soil productivity and susceptibility to wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion with the possible exception of dust from vehicle traffic. These impacts could result in increased indirect impacts such as runoff, erosion and off-site sedimentation. Activities that could cause these types of indirect impacts include construction and operation of well site, access road, gas pipelines and production facilities.

Contamination of soil from drilling and production wastes mixed into soil or spilled on the soil surfaces could cause a long-term reduction in site productivity. Some of these direct impacts can be reduced or avoided through proper design, construction and maintenance and implementation of best management practices.

Additional soil impacts associated with lease development would occur when heavy precipitation causes water erosion damage. When water saturated segment(s) on the access road become impassable, vehicles may still be driven over the road. Consequently, deep tire ruts would develop. Where impassable segments are created from deep rutting, unauthorized driving may occur outside the designated route of the access road.

4.10.2 Mitigation

The operator shall stockpile the topsoil from the surface of the well pad which will be used for surface reclamation of the well pad. The impact to the soil would be remedied upon reclamation of the well pad when the stockpiled soil that was specifically conserved to establish a seed bed is spread over the well pad and vegetation re-establishes.

The reserve pit shall be recontoured and reseeded as described in the attached Conditions of Approval. Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached Conditions of Approval.

Road constructions requirements and regular maintenance would alleviate potential impacts to the access road from water erosion damage.

4.11 Watershed - Hydrology

4.11.1 Direct and Indirect Impacts

Construction and surface disturbance activities from the construction of the well pad, access road, pipelines and powerlines can result in long term and short term alterations to the hydrologic regime. Peak and low flow of perennial streams, ephemeral, and intermittent rivers and streams would be directly affected by an increase in impervious surfaces resulting from the construction of the well pad and road. The potential hydrologic effects to peak flow is reduced infiltration where surface flows can move more quickly to perennial or ephemeral rivers and streams, causing peak flow to occur earlier and be larger. Increased magnitude and volume of peak flow can cause bank erosion, channel widening, downward incision and disconnection from the floodplain. The potential hydrologic effects to low flow is reduced surface storage and groundwater recharge, resulting in reduced baseflow to perennial, ephemeral, and intermittent rivers and streams. The direct impact would be that hydrologic processes may be altered where the perennial, ephemeral, and intermittent river and stream system responds by changing physical parameters, such as channel configuration. These changes may in turn impact chemical parameters and ultimately the aquatic ecosystem.

Long term direct and indirect impacts to the watershed and hydrology would continue for the life of the well and would decrease once the surfacing material has been removed from the well pad and access road. Short term direct and indirect impacts to the watershed and hydrology would occur from access roads that are not surfaced with material and would likely decrease in time due to reclamation efforts.

4.11.2 Mitigation

The operator will stockpile the topsoil from the surface of the well pad which will later be used for surface reclamation of the well pad. Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer will issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached Conditions of Approval.

4.12 Vegetation

4.12.1 Direct and Indirect Impacts

The construction of the access road and well pad would remove native vegetation. (See - Table 4.0 for Summary of Disturbance).

If it is a producing well, reclamation would not commence until the well is a depleted producer and is plugged and abandoned. Vegetative recovery on the access road and well pad would depend on life of the well. Native vegetation would encroach on the well pad over time and where high volumes of vehicular traffic occur; the areas driven over would remain unvegetated. If the well is drilled as a dry hole and is plugged, the reclamation of the access road and well pad would immediately follow. The impacts to the vegetation would be short-term if the reclamation efforts of the disturbed areas have re-vegetated successfully within a few years.

4.12.2 Mitigation

No impact to vegetation is anticipated. However measures will be taken in the event impacts to vegetation are found.

4.13 Livestock Grazing/Range

4.13.1 Direct and Indirect Impacts

There would be some minor disruption of livestock grazing in the pastures, specifically on the well pad, during the construction and drilling phase of the well. Vehicle traffic would increase in the area which may lead to conflicts with livestock.

4.13.2 Mitigation

If any conflicts with livestock do arise as a result of the access road and well pad construction, mitigation measures will be taken, and consultation with the allottee will mitigate those impacts.

4.14 Special Status Species

4.14.1 Direct and Indirect Impacts

Lesser Prairie Chicken - Direct, long term impacts to this species are unknown at this time. Although the project is within their preferred habitat type, there are no known populations in close proximity to this site. However, impacts to habitat would occur by the continued fragmentation caused by the construction of the well pad, roads, pipelines, and the increased presence of human traffic. This could contribute to limiting future expansion of populations of lesser prairie chicken in this area.

All abandoned wells shall be marked with a permanent monument containing information as described in Title 43 CFR 3162.6 (b). The common practice within southeastern New Mexico is to install a four foot tall iron post over the well bore, containing pertinent well information. The location of the Carthel BGT Federal #2 well is within the Lesser Prairie-Chicken and Sand Dune Lizard habitat. It is BLM's objective to provide opportunities for expansion of Lesser Prairie-Chicken and Sand Dune Lizard habitats by reducing negative impacts to the species. It is BLM decision to implement the installation of a steal plate located at and/or below ground level over the well bore, with the required pertinent well information inscribed to the metal plate with a beaded weld.

4.14.2 Mitigation

Construction activities would be conducted outside of the period of March 15th through June 15th to protect Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) habitat.

Upon well abandonment the operator will install a steal plate located at and/or below ground level over the well bore, with the required pertinent well information inscribed to the metal plate with a beaded weld.

4.15 Wildlife

4.15.1 Direct and Indirect Impacts

Some small wildlife species may be killed and their dens or nests destroyed during construction of the access road and well pad. The construction of the access road and well pad could cause fragmentation of wildlife habitat.

The short-term negative impact to wildlife would occur during the construction phase of the operations would be due to noise and habitat destruction. In general, most wildlife species would become habituated to the new facilities. For other wildlife species with a low tolerance to activities, the operations on the well pad would continue to displace wildlife from the area due to disturbances by the high volumes of vehicle traffic during equipment maintenance. Upon abandonment of the well, the area would revegetate and wildlife would return to previous levels.

4.15.2 Mitigation

The conditions of approval would alleviate most losses of wildlife species, such as; netting storage tanks, installation or other modifications of cones on separator stacks, and timing stipulations.

4.16 Recreation

Oil and gas activities would have little or no affect on recreational opportunities within this area. Large blocks of public land would allow recreationist to use public land and avoid the oil and gas facilities within the area.

4.16.1 Direct and Indirect Impacts - None

4.16.2 Mitigation - None

4.17 Visual Resources

Facilities, such as condensate and produced water or oil storage tanks that rise above eight feet, would provide a geometrically strong vertical and horizontal visual contrast in form and line to the characteristic landscape and vegetation, which have flat, horizontal to slightly rolling form and line. The construction of an access road, well pad and other ancillary facilities would slightly modify the existing area visual resources. The proposed action is located in an area designated VRM Class IV.

The objective of Class IV is to: “Provide for management activities which require major modification of the existing landscape character...Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements.”

Through color manipulation, by painting well facilities to blend with the rolling to flat vegetative and/or landform setting with a gray-green to brownish color, the view is expected to favorably blend with the form, line, color and texture of the existing landscape. The flat color olive drab supplemental environmental colors also closely approximates the brownish color of the setting. All facilities, including the meter building, would be painted this color.

Cumulative adverse visual impacts can be avoided by gradually moving into a more appropriate vegetative/landform setting color scheme.

4.17.1 Direct and Indirect Impacts

Through color manipulation, by painting well facilities to blend with the rolling to flat vegetative and/or landform setting with a gray-green to brownish color, the view is expected to favorably blend with the form, line, color and texture of the existing landscape

4.17.2 Mitigation

The flat color Olive Drab 18-0622 TPX from the Supplemental Environmental Colors Chart is to be used on all facilities to closely approximate the vegetation within the setting. All facilities, including the meter building, would be painted this color.

4.18 Cave/Karst

While the proposed action is located in the *Low Potential Karst Area*, no surface cave/karst features were observed in the immediate vicinity of the proposed action.

4.18.1 Direct and Indirect Impacts - None

4.18.2 Mitigation - None

4.19 Public Health and Safety

4.19.1 Direct and Indirect Impacts

The construction and drilling operations will be conducted in a safe workman like manner and no impacts are anticipated to occur when the operations are conducted in a professional constructive manner.

4.19.2 Mitigation - Non-required.

4.20 Cumulative Impacts

The leased area of the proposed action has been industrialized with oil and gas well development. The surface disturbance for each project that has been permitted has created a spreading out of land use fragmentation. The cumulative impacts fluctuate with the gradual reclamation of well abandonments and the creation of new additional surface disturbances in the construction of new access roads and well pads. The on going process of restoration of abandonments and creating new disturbances for drilling new wells gradually accumulates as the minerals are extracted from the land. Preserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts.

Analysis of cumulative impacts for reasonably foreseeable development (RFD) of oil and gas wells on public lands in the Roswell Field Office was presented in the 1994 Draft Roswell Resource Management Plan (RMP). The RFD was validated in the 2006 Draft Special Status Species RMP Amendment. Potential development of all available federal minerals in the field office, including those in the proposed lease parcels, was included as part of the analysis.

Greenhouse gas (GHG) emissions from all oil and gas wells within the field office total approximately 4.7 million metric tons annually. The reasonable and foreseeable development (RFD) was based on drilling activity from 1975 through 2005 and was projected 20 years in the future. Therefore, the GHG emissions for oil and gas development for this time period are approximately 235 million metric tons.

This total is most likely an over estimate based on four factors. One factor is that GHG emissions have gradually grown over the past 50 years and the number used in these calculations was an estimate of current emissions. The second factor is the future GHG emissions will decrease as the best management practices are implemented. The third factor is the calculations presented here do not take into account wells that go out of production and are plugged and abandoned. The fourth factor is the calculations shown here are based on the number of wells drilled per year and not every well drilled is a producer. Non-producers or dry holes would not produce GHG emissions.

Finally, the EPA estimates the total GHG emissions from oil and natural gas production, procession, transmission and distribution account for only 11 percent of the total GHG emissions nationwide.

While it is likely that there will be no significant cumulative impact from the proposed actions, continued oil and gas development, and other surface-disturbing activities in these areas, may potentially have negative cumulative impacts on vegetation, soil, water, livestock, wildlife and visual resources.

5.0 Consultation/Coordination

This section includes individuals or organizations from the public and its' users, the interdisciplinary team, and permittees that were contacted during the development of this document. Onsite inspection(s) was conducted on (2/2/08)

Table 5.1 Summary of Public Contacts Made During Preparation of Document and Interdisciplinary Team

Public Contact	Title	Organization	Present at Onsite?
Debbie L. Caffall	Regulatory Agent	Yates Petro. Corp.	Present
ID Team Member	Title	Organization	Present at Onsite?
Richard G. Hill	Environmental Protection Specialist	RFO	Present

6.0 Appendices

The Roswell Field Office; Well Location Map (Exhibit A), Pecos District-RFO, Conditions of Approval, and the special requirements derived from this EA, would be applied to this proposed action to minimize the surface disturbance and conserve the surrounding landscape.

6.1 References

U.S. Department of the Interior, Bureau of Land Management. January 1997, *Proposed Resource Management Plan and Final Environmental Impact Statement*. Roswell, New Mexico.

U.S. Department of the Interior, Bureau of Land Management. October 10, 1997, *Roswell Resource Management Plan Record of Decision*. Roswell, New Mexico.

6.1.1 APD, Complete

6.1.2 Authorities

Code of Federal Regulations (CFR) 3160

40 CFR All Parts and Sections inclusive Protection of Environment, Revised as of July 1, 2001.

43 CFR, All Parts and Sections inclusive - Public Lands: Interior. Revised as of October 1, 2000.

U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). 2001. The Federal Land Policy and Management Act, as amended. Public Law 94-579.

Department of the Interior
Bureau of Land Management
Roswell Field Office
2909 W. Second Street
Roswell, New Mexico 88201

Project: Carthel "BGT" Federal #2
Location: Section: 23, T. 15 S., R. 29 E.
Applicant: Yates Petroleum Corp.
Roswell Field Office: (505) 627-0272

EA Log Number: NM-510-2008-052
Lease Number: NM-100552
File Code: 3160

Finding of No Significant Impact

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined the proposed action is not expected to have significant impacts on the environment and that preparation of an Environmental Impact Statement is not warranted.

Decision Record

Based upon the analysis, the proposed Carthel "BGT" Federal #2 oil well, located in 1980' FNL & 1980' FEL, Section 23, T. 15 S., R. 29 E., Chaves County, New Mexico is approved.

Rational: The Bureau of Land Management staff has reviewed the environmental assessment and identified site-specific mitigation measures to avoid or minimize surface impacts resulting from the construction of this project. The well pad and access road will remain as long term impacts. The cumulative impacts to the environment from existing and new development have been identified.

This proposed action is in compliance with the 1997 Roswell Resource Management Plan, as amended and Special Status Species Resource Management Plan amendment May 20, 2008 (RMPA). This plan has been reviewed to determine if the proposed action conforms to the land-use planning terms and conditions required by 43 CFR 1610.5. This action does not conflict with existing Chaves County land-use planning or zoning.

Administrative Review and Appeal: Under BLM regulations, this Decision Record (DR) is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this DR must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, 1474 Rodeo Road, Santa Fe, NM 87505, no later than 20 business days after this DR is received or considered to have been received.

Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Prepared by:

Environmental Protection Specialist

Date

Approved by:

Assistant Filed Manager
Lands and Minerals

Date

**PECOS DISTRICT
ROSWELL FIELD OFFICE
CONDITIONS OF APPROVAL**

OPERATORS NAME: Yates Petroleum Corporation
LEASE NO.: NM-100552
WELL NAME & NO: Carthel "BGT" Federal #2
SURFACE HOLE FOOTAGE: 1980' FNL & 1980' FEL
LOCATION: Section 23, T. 15 S., R. 29 E., NMPM
COUNTY: Chaves County, New Mexico

GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

I. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD (Filing of a Sundry Notice is required for this 60 day extension).

II. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or Paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or Paleontological resources may result in a shutdown order by the Authorized Officer.

III. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations (access road and/or well pad). Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

IV. CONSTRUCTION

A. NOTIFICATION:

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Roswell Field Office at (505) 627-0247 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved Application for Permit to Drill and Conditions of Approval on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL:

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation. The topsoil shall be stockpiled in the southeast side of the well pad.

C. RESERVE PITS:

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 150' X 175' on the NORTH side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

-2-

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

D. FEDERAL MINERAL MATERIALS PIT:

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Roswell Field Office at (505) 627-0236.

E. WELL PAD SURFACING:

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need.

F. ON LEASE ACCESS ROADS:

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

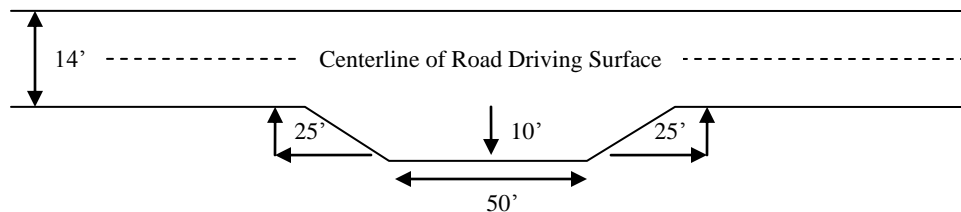
Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

Standard Turnout – Plan View

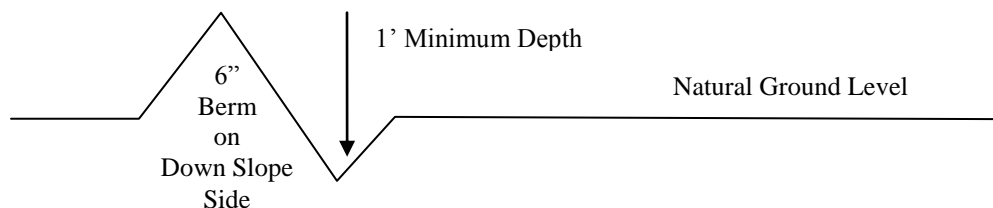


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section Of Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula For Spacing Interval Of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

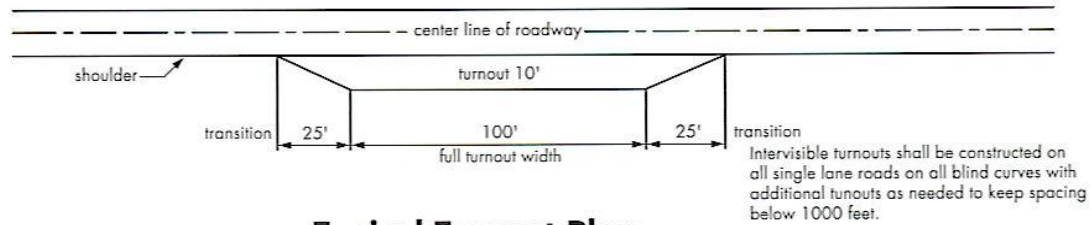
Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

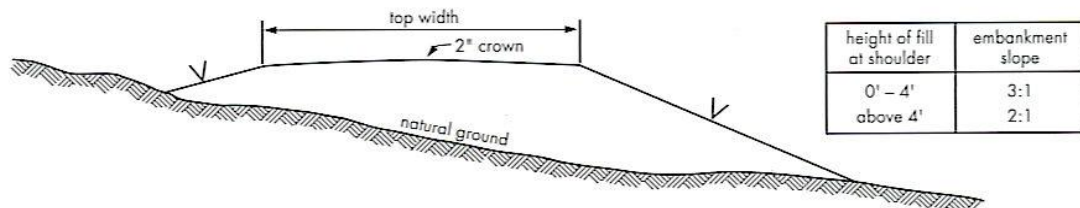
Pipeline Protection Requirement

A. Precautionary measures shall be taken by the operator during construction of the access road to protect two (2) existing pipeline(s) that the access road will cross over (**See map - EXHIBIT A**). An earthen berm; 2 feet high by 3 feet wide and 14 feet across the access road travelway (**2' X 3' X 14'**), shall be constructed over each of the existing pipeline(s). The operator shall be held responsible for any damage to the existing pipeline(s). If the either pipeline is ruptured and/or damaged the operator shall immediately cease construction operations and repair the pipeline(s). The operator shall be held liable for any unsafe construction operations that threaten human life and/or cause the destruction of equipment.

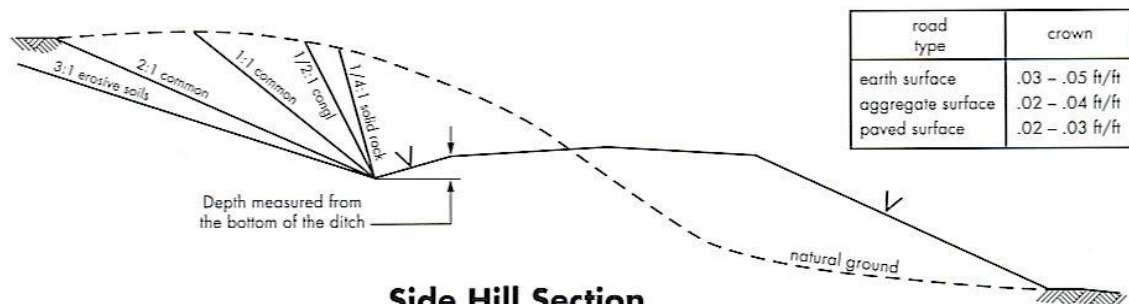
Figure 1 – Cross Sections and Plans For Typical Road Sections



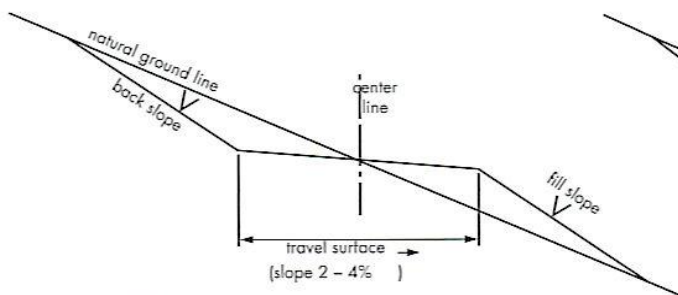
Typical Turnout Plan



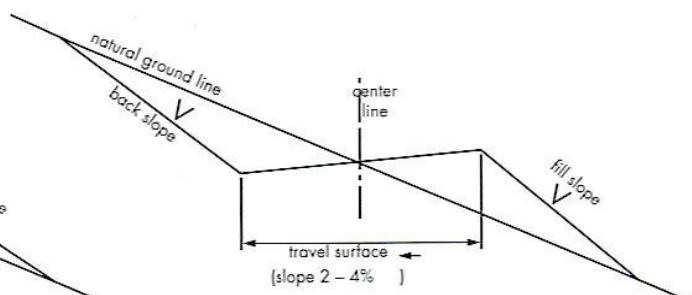
Embankment Section



Side Hill Section



Typical Outsloped Section



Typical Insloped Section

V. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

1. Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201, 24 hour at (575) 627-0205.
2. The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:
 - a. Spudding well
 - b. Setting and/or Cementing of all casing strings
 - c. BOPE tests
3. A Hydrogen Sulfide (H₂S) Drilling Plan should be activated 500 feet prior to drilling into the N/A formation.
4. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
5. When floor controls are required, (3M or Greater) controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
6. Gamma-Ray/Neutron logs shall be run from the base of the Salado formation to the surface. The logs shall be run at a speed which allows the logs to be legible and no faster than manufactures of the logging tools recommended speed. (R-111-P area only)

B. CASING

1. The 13 3/8 inch surface casing shall be set at 350 feet and must be set above the top of the salt and casing cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compression strength, whichever is greater. (This is to include the lead cement).
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compression strength, whichever is greater.
 - d. If cement falls back, remedial action will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 5 1/2 inch intermediate casing is to circulate to surface . If cement does not circulate see B.1.a-d above.
4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 (2M) psi.
 - a. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - b. The tests shall be done by an independent service company.
 - c. The results of the test shall be reported to the appropriate BLM office.
 - d. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
 - e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

D. DRILL STEM TEST (optional)

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

VI. PRODUCTION

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, Olive Drab, Munsell Soil Color Chart 18-0622 TPX.

VII. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo "interim" reclamation in order to minimize the environmental impacts of development on other resources and uses.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used in road repairs, fire walls or for building other roads and locations. In addition, in order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

B. RESERVE PIT CLOSURE

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

PECOS DISTRICT SEED MIX FOR:

The following soil or soil associations may represent these ecological sites: Alama-Poquita, Alama-Reeves, Anthony sandy loam, Berino, Blakeney-Ima, Cacique, Dona Ana, Glendale-Harkey, Harkey sandy loam, Karro loam, Kermit-Berino fine sand, Mobeetie fine sandy loam, Pajarito-Bluepoint, Poquita, Potter-Simona complex, Sharvana-Redona, Simona, Simona-Bippus complex, Sotim-Berino, Sotim-Simona association, moderately undulating, Tonuco loamy sand, Vinton

Ecological Site: Shallow Sand SD-3 and Sandy SD-3

Common Name and Preferred Variety	Scientific Name	Pounds of Pure Live Seed Per Acre
Black grama	(<i>Bouteloua eriopoda</i>)	3.00 lbs.
or Blue grama,	(<i>Bouteloua gracilis</i>)	
Sideoats grama	(<i>Bouteloua curtipendula</i>)	2.00 lbs.
Sand dropseed	(<i>Sporobolus cryptandrus</i>)	1.50 lbs.
or Mesa dropseed	(<i>S. flexuosus</i>)	
or Spike dropseed	(<i>S. contractus</i>)	
Desert or Scarlet	(<i>Sphaeralcea ambigua</i>)	1.00 lb.
Globemallow or	(<i>S. coccinea</i>)	
Croton	(<i>Croton</i> spp.)	<u>1.00 lb.</u>
TOTAL POUNDS PURE LIVE SEED (pls) PER ACRE		8.50 lbs.

Certified Weed Free Seed. If one species is not available increase all others proportionately. Use no less than 4 species, including 1 forb. No less than 8.5 pounds lbs per acre shall be applied.

VIII. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

- a. Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.
- b. Upon abandonment of the well, instead of installing a 4 foot dry hole marker, the operator/lessee shall install a steal plate in place of the permanent monument marker. The steal plate shall be installed at and/or below ground level with the required pertinent well information inscribed to the steal plate with a beaded weld.

IX. SEASONAL DRILLING REQUIREMENT:

A. Lesser Prairie Chicken Stipulation:

The Roswell Approved Resource Management Plan and Record Of Decision addresses the preservation of the Lesser Prairie Chicken wildlife habitat. In cooperation with NMDGF, the RFO shall also consider the preservation of the North Bluit Lesser Prairie Chicken Management Area.

1. There shall be no earthmoving construction activities, well exploratory and/or developmental drilling, well completion, plugging and abandonment activities, **between March 1st through June 15th**, of each year. During that period, other activities, including the operation and maintenance of oil and gas facilities, will not be allowed between **3:00 A.M. and 9:00 A.M.**

To the extent practicable, activities occurring for a short period of time may be conducted so long as they do not commence until after **9:00 A.M.** Any deviation from this stipulation must be approved in writing by the Roswell Field Office Manager or the appropriate Authorized Officer.

2. All motors or engines that produce high noise levels shall have mufflers installed that effectively reduce excessive noise levels within prairie chicken habitat. High noise levels produced by motors or engines shall be reduced and muffled so as not to exceed **75 db** measured at 30 feet from the source of the noise.

3. Upon abandonment of the well, reclamation activities can be conducted between **March 1st through June 15th**, so long as reclamation work shall not be conducted between the hours of **3:00 AM to 9:00 AM**. Any deviation from this requirement shall require prior approval by the Authorized Officer.

4. In an emergency situation, the Authorized Officer can allow a pit to be constructed for the purpose of collecting crude oil for removal. To prevent wildlife from entering the pit, netting of adequate size to deter access by wildlife shall cover the pit until it is no longer a threat to wildlife, and the pit is reclaimed.